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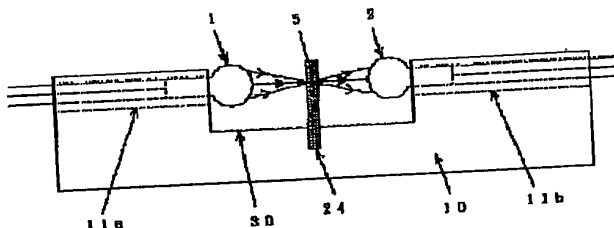
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TITLE : OPTICAL FIBER COUPLER



ABSTRACT : **PURPOSE:** To provide a coupler with which the easy execution of adjustment, such as optical axis alignment, is possible and the compact production thereof is possible by spheroidizing the front ends of fibers to form optical lens fibers having lenses and using these fibers as lens fibers for emission and light reception.

CONSTITUTION: Prescribed crystal anisotropic silicon is used as a silicon substrate 10 and fiber fixing grooves 11a, 11b for fixing the spherically ended lens fibers 1, 2 are patterned by a photolithography technique and are formed by anisotropic etching. A coupler groove 30 is also formed deeper than these fiber fixing grooves 11a, 11b by anisotropic etching. An optical element fixing groove 24 is formed by machining. The optical fibers are cut to a prescribed length and coreless fibers are connected to the end faces and are melted to form the spherically ended lens fibers. Two pieces of the spherically ended lens fibers are set as the lens fibers 1, 2 for emission and light reception in the spherically ended lens fibers so as to butt the parts of the front spheres against the fiber fixing grooves 11a, 11b. The optical element 5 is arranged between the front sphere and the front sphere and is fixed by adhesives.

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